



SPECIFICATIONS FOR A QUALITY LABEL FOR DECORATION OF COATED ALUMINIUM USED IN ARCHITECTURAL APPLICATIONS

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TERMINOLOGY

COATING APPLICATOR: applicator of powder coating materials.

DECORATOR: applicator of decorations.

DECORATION: a single combination of a paper or plastic film with a powder (sublimation technology) or of a base coat with a top coat (powder on powder technology).

DECORATION CLASS: classification of decorations according to weathering performance.

DECORATION SYSTEM: combination of an approved powder coating (P-No.) from a licensed powder supplier (PS-No.) with an approved film from a licensed film supplier (FS-No.).

FILM SUPPLIER: supplier of paper or plastic film used for transferring decorations.

GLOSS CATEGORY: classification of gloss finishes into three different gloss levels (matt, semi-matt or semi-gloss, gloss).

POWDER SUPPLIER: supplier of powder coating material.

QUALIDECO LICENCE: confirmation that a company (decorator, film or powder supplier) operates in accordance with the QUALIDECO Specifications.

QUALIDECO APPROVAL: confirmation that a specific supplier's product meets the requirements of the QUALIDECO Specifications.



Chapter 1

SCOPE AND PURPOSE OF THE SPECIFICATIONS

1. INTRODUCTION

1.1. Scope and purpose of the Specifications

Various technologies can be used to produce decorative finishes on products, such as wood effect. The following Specifications cover technologies based on the transfer of images to coated substrates using the sublimation process or on powder on powder application using suitable techniques. Other technologies may be used only if they have been previously approved by the QUALIDECO Committee as specified in Appendix III.

These Specifications do not include process tests because the technology is patented.

The aim of the QUALIDECO Specifications is to establish minimum requirements that decoration plants, materials and decorated products shall meet and to ensure continuous quality control of products so that decorators and – in the case of sublimation technology – powder and film suppliers can be granted a QUALIDECO licence for exterior architectural applications.

1.2. Preliminary conditions

- a) The company that performs the coating cycle shall hold the QUALICOAT quality label to ensure that the coating is applied under the best conditions and the company has the equipment for the tests.
- b) For sublimation technology, the film and powder suppliers shall be licensed by QUALIDECO in accordance with Chapter 3 and the base powder coating shall be approved by QUALICOAT for sublimation use.
- c) For powder on powder technology, the powder coating materials shall be approved by QUALICOAT in accordance with § 5.1.1 and/or by QUALIDECO in accordance with § 5.1.2. The decorations shall be applied at the same production site.
- d) The licensees shall attend training programmes organised regularly by the General Licensee or QUALIDECO.



Chapter 2

LICENSING OF DECORATORS USING SUBLIMATION TECHNOLOGY

2. LICENSING OF DECORATORS USING SUBLIMATION TECHNOLOGY

Decorations using sublimation technology are obtained by transferring an image from a support (that can be paper or plastic film) to a coated surface with a special process using temperature and/or pressure and/or under vacuum.

The following alternatives are possible to obtain a licence for exterior applications:

- **Alternative 1**

The decorator shall apply only decorations that are approved by QUALIDECO and defined on the QUALIDECO website or decorations listed by the suppliers in their technical data sheets.

- **Alternative 2**

The decorator shall have all of its own decorations tested and approved by QUALIDECO.

2.1. Work specifications for decorators using sublimation technology (REQUIREMENTS)

2.1.1 Stoving

To produce decorated products, the decorator shall have a stoving process that operates with a system to check the metal temperature, under the conditions prescribed by the suppliers in the technical data sheets.

2.1.2 Laboratory

The decorator shall at least be equipped with the following apparatus:

- ◆ specular glossmeter
- ◆ instrument for measuring coating thickness
- ◆ equipment to check metal temperature (for instance thermo labels or a temperature recorder).

Each piece of apparatus shall have a data sheet showing the apparatus identification number and calibration checks.

2.1.3 In-house control

Traceability of all raw materials used for the decoration process is a requirement. The decorator shall ensure unique identification of the decorated products and maintain records.

The decorator shall monitor the production processes and inspect the decorated products as follows:

- **INCOMING MATERIALS**

The decorator shall keep a register showing all data concerning the material received and to be decorated (date, coating applicator's reference, customer, QUALICOAT approval number

of base coating, powder coating reference code, film supplier, decoration designation, film reference code).¹

The coated material shall be delivered by the coating applicator to the decorator with an applicator certificate (for example a copy of the in-house control records relating to the lot). This certificate shall be archived by the decorator.

The maximum time allowed between coating and decoration is two weeks. During this period, the coated material shall be protected from dust and all kinds of contamination.

- **COATED PRODUCTS**

- a) **Gloss test (EN ISO 2813)**

Gloss values shall be provided by the coating applicator for every lot of coated products (one lot represents a customer's complete order in one colour or that part of the order which is in the plant).

If the gloss cannot be measured with apparatus, a visual assessment shall be performed.

The results of these analyses shall be entered in some record (register) readily accessible to the inspector, showing the nominal values and maximum values not to be exceeded.

- b) **Coating thickness test (EN ISO 2360)**

The coating thickness measurements shall be provided by the coating applicator on at least as many samples as specified below:

Lot size	Number of samples (random selection)	Acceptance limit for rejected samples
1 – 10	All	0
11 – 200	10	1
201 – 300	15	1
301 – 500	20	2
501 – 800	30	3
801 – 1,300	40	3
1,301 – 3,200	55	4
3,201 – 8,000	75	6
8,001 – 22,000	115	8
22,001 – 110,000	150	11

The results of these measurements (minimum and maximum values) shall be entered and retained on some record readily accessible to the inspector.

- **DECORATED PRODUCTS**

- Appearance**

Appearance shall be evaluated visually on significant surfaces of the decorated products by comparison with a reference sample or as agreed with the customer.

¹ See Appendix I – Example of in-house control checklists for decorators.

The **significant surface** shall be defined by the customer and is that part of the total surface that is essential to the appearance and serviceability of the item. Edges, deep recesses and secondary surfaces are not included in the significant surface.

The coating on the significant surface shall not have any scratches through to the base metal. When the coating on the significant surface is viewed at an oblique angle of about 60° to the upper surface, none of the defects listed below shall be visible from a distance of three metres: excessive roughness, runs, blisters, inclusions, craters, dull spots, pinholes, pits, scratches or any other unacceptable flaws.

When viewed on-site, these criteria shall be fulfilled as follows:

- for parts used outdoors: viewed at a distance of 5 m
- for parts used indoors: viewed at a distance of 3 m

- **STOVING CONDITIONS**

The stoving conditions shall be monitored to ensure compliance with the film supplier's data sheet by measuring the temperature at least once a day on one point of the section surface and at least once a week at three different points in the oven to ensure uniform stoving.

2.2. Testing and samples required for granting a licence

An inspection of the decorator's plant shall be carried out and laboratory tests shall be performed as follows to ensure that the decorations meet the requirements.

- If the decorator uses **only alternative 1**, only two decorations selected by the inspector during his visit need to be tested.
- If the decorator uses **only alternative 2**, all of the decorations for exterior architectural applications shall be tested and approved.
- If the decorator uses **both alternatives**, two decorations falling under alternative 1 and all decorations falling under alternative 2 shall be tested.

2.2.1 Inspection

The inspection shall include the following aspects:

a) STOVING PROCESS

As specified in § 2.1.1 and § 2.1.3.

b) LABORATORY EQUIPMENT

As specified in § 2.1.2 to ensure that the equipment is available and functional.

c) DECORATED PRODUCTS

The inspector shall perform the following tests on the decorated parts using his own equipment:

- appearance
- gloss
- coating thickness.



d) IN-HOUSE CONTROL AND REGISTERS

The inspector shall check that in-house control has been carried out in accordance with § 2.1.3 and that registers are correctly maintained.

2.2.2 Tests

2.2.2.1 Laboratory tests

Laboratory tests shall be performed on decorated samples taken from a production lot for exterior architectural applications. Corrosion tests shall be performed on single samples.

The tests and prescribed limits are as follows:

a) Gloss

EN ISO 2813 – using incident light at 60° to the normal

Note: if the significant surface is too small or unsuitable for the gloss to be measured with a glossmeter, the gloss should be compared visually with the reference sample (from the same viewing angle).

REQUIREMENTS:

Gloss category	Gloss range	Acceptable variation
1 (matt)	0 – 30	+/- 5 units
2 (semi-matt or semi-gloss)	31 – 70	+/- 7 units
3 (gloss)	71 – 100	+/- 10 units

b) Coating thickness

EN ISO 2360

The thickness of the organic coating on each part to be tested shall be measured on the significant surface at not less than five measuring areas (approx. 2 cm²) with three to five separate readings taken at each area. The average of the separate readings taken at one measuring area gives a measured value to be recorded in the inspection reports.

REQUIREMENTS:

None of the measured values may be less than 80% of the specified minimum value (60 µm), otherwise the thickness test as a whole shall be considered unsatisfactory.

c) Resistance to humid atmospheres containing sulphur dioxide

EN ISO 3231 (0.2 l SO₂ – 24 cycles)

A cross-cut incision with a width of 1 mm shall be made to cut the organic coating down to the metal.

REQUIREMENTS:

No infiltration exceeding 1 mm on both sides of the scratch, and no colour change or blistering in excess of 2 (S2) in accordance with ISO 4628-2.

d) Accelerated weathering test

ISO 16474-2

Luminous intensity: 550 ± 20 W/m² (290–800 nm)

Black standard temperature: 65 ± 5°C



Demineralised water: maximum 10 µS
 Special UV filter (290 nm)
 Cycles of 18 minutes in a wet medium and 102 minutes in a dry medium.

Testing Time:

CLASS 1	CLASS 2 (Appendix II)
1000 hours	2000 hours, with gloss and colour change measured every 500 hours.

After exposure, the test panels shall be rinsed with demineralised water and checked for:

Gloss variation: EN ISO 2813

60° angle of incidence

Colour change: ΔE CIELAB formula in accordance with ISO 7724/3, measurement including specular reflection and grey scale (ISO 105-A02).

Three colour measurements shall be made on the test panels before and after the accelerated weathering test.

REQUIREMENTS:

Gloss variation

CLASS 1	CLASS 2 (as defined in Appendix II)
The loss of gloss after the accelerated weathering test shall not be greater than 50% of the original value.	After 2000 hours 50% residual gloss for category 1 70% residual gloss for categories 2 and 3

Colour change:

Even though the colour is not uniform, the colour change can still be measured with instrumental apparatus. In this case, the provisional limit shall be Delta E = 2 for a beige base and 3 for a brown base.

In all cases, the final evaluation shall be based on a visual assessment of the pattern using normal corrected vision, with a maximum value of 4 on the grey scale (ISO 105-A02).

2.2.2.2 Natural weathering test (in the case of alternative 2 only)

Exposure in Florida in accordance with ISO 2810

Samples shall be exposed at an angle of 5° to the horizontal and facing south towards the equator for one year. The test shall start in April.

REQUIREMENTS:

For the time being, the acceptable limits are the same as those stipulated for the accelerated weathering test.



2.2.3 Conformity assessment for granting a licence

The inspector shall submit the inspection report to the General Licensee.

Under the supervision of QUALIDECO, the General Licensee shall follow the procedure below:

Alternative 1

- If the results of the inspection and laboratory tests meet the requirements, a licence to use the QUALIDECO quality label shall be granted to the decorator.
- If the results of the inspection or laboratory tests do not meet the requirements, the applicant shall be informed that the licence to use the quality label cannot be granted for the time being, stating the reasons. A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.

TABLE 1: PROCEDURE FOR GRANTING A LICENCE TO A DECORATOR (ALTERNATIVE 1)

INSPECTION RESULT	ACTIONS		
SATISFACTORY	▶ LABORATORY TESTS ⁽¹⁾	TEST RESULTS SATISFACTORY	LICENCE GRANTED
		TEST RESULTS UNSATISFACTORY	LICENCE NOT GRANTED ⁽²⁾
UNSATISFACTORY	LICENCE NOT GRANTED ⁽²⁾		

(1) Two decorations selected by the inspector during his visit shall be tested in accordance with section 2.2.2.1.

(2) A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.

Alternative 2

- If the results of the inspection, laboratory tests and Florida test meet the requirements, a licence to use the QUALIDECO quality label shall be granted to the decorator for the decorations successfully tested.
- If the results of the inspection, laboratory tests or Florida test do not meet the requirements, the applicant shall be informed that the licence to use the quality label cannot be granted for the time being, stating the reasons. A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.

TABLE 2: PROCEDURE FOR GRANTING A LICENCE TO A DECORATOR (ALTERNATIVE 2)

INSPECTION RESULT	ACTIONS				
SATISFACTORY	▶ LABORATORY TESTS ⁽¹⁾	LABORATORY TEST RESULTS SATISFACTORY	▶ FLORIDA TEST	FLORIDA TEST SATISFACTORY	LICENCE GRANTED ⁽²⁾
				FLORIDA TEST UNSATISFACTORY	LICENCE NOT GRANTED ⁽³⁾
		LABORATORY TEST RESULTS UNSATISFACTORY	LICENCE NOT GRANTED ⁽³⁾		
UNSATISFACTORY	LICENCE NOT GRANTED ⁽³⁾				

(1) Every decoration produced for exterior architectural applications shall be tested.

(2) Every decoration that has met the requirements after the Florida test shall be published in a list of approved decorations appended to the decorator's certificate.

(3) A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.



2.3. Renewing a licence granted to a decorator using sublimation technology

The renewal of a QUALIDECO licence is based on the inspection results and the results of the tests carried out on decorations selected by the inspectors.

2.3.1 Inspection

After a plant has been granted a QUALIDECO licence, it shall be inspected once a year (preferably in the first half of the year) in accordance with § 2.2.1.

Alternative 1

During the inspection, the inspector shall select samples of two decorations in sufficient number and size to carry out the laboratory tests.

Alternative 2

During the inspection, the inspector shall select samples of every decoration in sufficient number and size to carry out the laboratory tests and the Florida test.

Marketing materials shall also be examined in order to check that the QUALIDECO licence is used for approved decorations only.

2.3.2 Tests

2.3.2.1 Laboratory tests

The tests are the same as for granting a QUALIDECO licence (§ 2.2.2.1):

- gloss
- coating thickness
- resistance to humid atmospheres
- accelerated weathering test.

2.3.2.2 Natural weathering test (in the case of alternative 2 only)

See § 2.2.2.2.

2.3.3 Conformity assessment for renewing a licence

The inspector shall submit the inspection report to the General Licensee or QUALIDECO for evaluation.

Under the supervision of QUALIDECO, the General Licensee shall follow the procedure below:

Alternatives 1 and 2

- If the results of the inspection do not meet the requirements, another inspection shall be carried out within 30 working days after the decorator has received notification of an unsatisfactory result from the General Licensee and/or QUALIDECO. In the meantime, the licensee shall rectify nonconformities and inform the General Licensee or QUALIDECO immediately. If the second inspection again produces unsatisfactory results, the licence to use the quality label shall be withdrawn immediately.

Alternative 1 (also see Table 3 below)

- If the results of the inspection are satisfactory and the laboratory tests on every decoration meet the requirements, authorisation to use the QUALIDECO quality label shall continue.
- If the results of the inspection are satisfactory but the laboratory tests on one or more decoration(s) do not meet the requirements, the decorator shall ask the powder and film suppliers to provide a new powder coating sample and a new film sample respectively, with the same reference codes as the materials used for preparing the unsatisfactory decoration(s), in order to prepare new decorated samples for repeating the laboratory tests.

At the same time, the powder and film suppliers shall provide the QUALIDECO laboratory with new samples in order to simultaneously test the decoration(s) produced on these samples.

- If the results of all these repeat laboratory tests meet the requirements, authorisation to use the QUALIDECO label shall continue.
- If the results of these repeat laboratory tests are again unsatisfactory, the decorator shall no longer be allowed to use the decoration(s) that failed, but the licence shall be renewed. In addition, the decoration(s) that failed shall be recorded in a list of banned decorations appended to the decorator’s certificate.

TABLE 3: PROCEDURE FOR RENEWING A LICENCE GRANTED TO A DECORATOR (ALTERNATIVE 1)

INSPECTION	INSPECTION RESULT	ACTIONS			
	SATISFACTORY	▶ LABORATORY TESTS ⁽¹⁾			
UNSATISFACTORY	▶ REPEAT INSPECTION	REPETITION OF INSPECTION	SATISFACTORY	▶ LABORATORY TESTS ⁽¹⁾	
			UNSATISFACTORY	LICENCE WITHDRAWN	

LABORATORY TESTS	LABORATORY TEST RESULTS	ACTIONS	FINAL ASSESSMENT			
			LICENCE	DECORATION(S)		
	BOTH DECORATIONS SATISFACTORY	NO ACTION	RENEWED	APPROVED/ RENEWED		
	• 1 DECORATION SATISFACTORY • 1 DECORATION UNSATISFACTORY	▶ REPEAT LABORATORY TESTS ON THE DECORATION(S) THAT FAILED ⁽²⁾	REPETITION ON DECORATOR’S SAMPLES	SATISFACTORY	RENEWED	APPROVED/ RENEWED
	REPETITION ON SUPPLIERS’ SAMPLES		UNSATISFACTORY	RENEWED	BANNED ⁽³⁾	
	BOTH DECORATIONS UNSATISFACTORY	▶ REPEAT LABORATORY TESTS ON THE DECORATION(S) THAT FAILED ⁽²⁾	REPETITION ON DECORATOR’S SAMPLES	SATISFACTORY	RENEWED	APPROVED/ RENEWED
REPETITION ON SUPPLIERS’ SAMPLES	UNSATISFACTORY		RENEWED	BANNED ⁽³⁾		

- (1) During the inspection, the inspector shall select samples of two decorations in sufficient number and size to carry out the laboratory tests.
- (2) After receiving notification of unsatisfactory results, the decorator shall ask the powder and film suppliers to provide a new powder coating sample and a new film sample respectively, with the same reference codes as the materials used for preparing the unsatisfactory decorations, in order to prepare new decorated samples for repeating the laboratory tests. At the same time, the powder and film suppliers shall provide the laboratory with new samples in order to simultaneously test the decoration produced on these samples.
- (3) Every banned decoration shall be recorded in a list of banned decorations appended to the decorator’s certificate.



Alternative 2 (also see Table 4 below)

- If the results of the inspection are satisfactory, authorisation to use the QUALIDECO quality label shall continue for every decoration that will meet the requirements after the Florida test.
- If the results of the inspection are satisfactory but a decoration does not meet the requirements after the laboratory or Florida tests, authorisation to use the QUALIDECO quality label shall be withdrawn immediately for the decoration that failed.

Every decoration that fails to meet the requirements after the laboratory or Florida tests shall be removed from the list of approved decorations and be mentioned in a list of banned decorations appended to the decorator’s certificate.

The decorator’s licence shall be withdrawn as soon as four decorations are banned.

TABLE 4: PROCEDURE FOR RENEWING A QUALIDECO LICENCE GRANTED TO A DECORATOR (ALTERNATIVE 2)

INSPECTION	INSPECTION RESULT	ACTIONS			
	SATISFACTORY	▶ LABORATORY TESTS ⁽¹⁾			
UNSATISFACTORY	▶ REPEAT INSPECTION		REPETITION OF INSPECTION	SATISFACTORY	▶ LABORATORY TESTS ⁽¹⁾
			UNSATISFACTORY	LICENCE WITHDRAWN	
LABORATORY TESTS	TEST RESULTS (by decoration)	ACTIONS			
	SATISFACTORY	▶ FLORIDA TEST	FLORIDA TEST	SATISFACTORY	LICENCE RENEWED (decoration renewed)
				UNSATISFACTORY	DECORATION BANNED ⁽²⁾
UNSATISFACTORY	DECORATION BANNED ⁽²⁾				

(1) During the inspection, the inspector shall select samples of every decoration in sufficient number and size to carry out the laboratory tests and the Florida test.
 (2) Every banned decoration shall be recorded in a list of banned decorations appended to the decorator’s certificate. The decorator’s licence shall be withdrawn as soon as four decorations are banned.

2.4. Withdrawal of a licence

A licence shall be withdrawn after two consecutive unsatisfactory inspections and, in the case of alternative 2, as soon as four decorations are banned (see Table 4).



Chapter 3

LICENSING OF FILM AND POWDER SUPPLIERS (APPLIES TO SUBLIMATION TECHNOLOGY ONLY)

3. LICENSING OF FILM AND POWDER SUPPLIERS (APPLIES TO SUBLIMATION TECHNOLOGY ONLY)

The grant of a licence to suppliers implies that film suppliers shall only use approved coating materials from licensed powder suppliers and that powder suppliers shall only use approved films from licensed film suppliers.

3.1. Licensing of film suppliers

3.1.1 Work specifications for film suppliers (REQUIREMENTS)

3.1.1.1 Traceability

The film supplier shall have a procedure for monitoring and documenting all manufacturing steps in order to ensure traceability in the production chain. The results of these measures shall be entered in some record (register) readily accessible to the inspector.

3.1.1.2 Laboratory and in-house control

In this context, the finished product is understood to be the film used for sublimation.

The film shall be tested after being applied to panels coated with a powder approved for QUALIDECO applications.

The film supplier shall have laboratory facilities that are separate from the production facilities. This laboratory shall have all the apparatus and chemicals necessary for testing the manufacturing process and finished products.

It shall at least be equipped with the following apparatus and reference material:

- ◆ a specular glossmeter
- ◆ an instrument for measuring coating thickness
- ◆ a recorder for stoving temperature and time with four different measuring points
- ◆ apparatus for testing accelerated weathering resistance and for measuring colour change and gloss retention
- ◆ an application booth
- ◆ transfer equipment
- ◆ a grey scale reference (ISO 105-A02).

Each piece of apparatus shall have a data sheet showing the apparatus identification number and calibration checks.

The film supplier shall use the following procedure to monitor its manufacturing process and test its finished products:

- A sample of each roll (every 1000 metres) shall be printed on the coated surface to check the visual appearance. The results shall be recorded and at least two samples, taken from the beginning and end of each roll, shall be stored.
- The film supplier shall provide the decorator with a **system data sheet** for the decoration approved for exterior applications (in particular indicating maximum temperatures and times and the reference to the film and powder codes). A copy shall be available to the



inspector during his visit.

- The film supplier shall test every single new decoration in its laboratory. The record of the results obtained shall be shown to the QUALIDECO inspector upon request.

3.1.2 Granting a licence to a film supplier

A licence shall be granted subject to the following conditions:

1. The film supplier shall submit to QUALIDECO a written application identifying the decoration system(s) (film + powder) to be approved.
2. The plant shall have a laboratory equipped with the minimum apparatus (see § 3.1.1.2).
3. If the application is accepted by QUALIDECO, the film supplier shall send a roll of film for the following **four basic decorations** to a QUALIDECO laboratory:
 - WALNUT and OAK applied on a brown base
 - PINE and OAK applied on a beige base.

The names and references of the powder coating materials used shall be specified.

4. Samples of film shall be taken from that part of the roll where the pattern and printing marks appear.
5. A QUALIDECO laboratory shall apply the film and perform the following tests:
 - accelerated weathering test
 - resistance to humid atmospheres containing sulphur dioxide.
6. A natural weathering test shall be carried out in Florida.
7. An inspection of the film supplier's facility shall be carried out to check that its in-house control meets the requirements specified in § 3.1.1.2.

CONFORMITY ASSESSMENT

Under the supervision of QUALIDECO, the General Licensee shall follow the procedure below:

- If the results of the inspection and laboratory tests meet the requirements, a licence to use the QUALIDECO quality label shall be granted for the decoration systems tested, which shall be considered approved.
- If the results of the inspection or laboratory tests do not meet the requirements, the applicant shall be informed that the licence to use the quality label cannot be granted for the time being, stating the reasons. A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.

After a licence has been granted:

- If the results of the Florida test are satisfactory for all the basic decorations tested, the grant of the licence shall be confirmed for the decoration system(s) tested.
- If one or more basic decoration(s) do not meet the requirements after the Florida test, the licence shall be confirmed, but the decoration system shall be withdrawn. If only one decoration system is covered by the certification and fails, the licence itself shall be cancelled.

TABLE 5: PROCEDURE FOR GRANTING A QUALIDECO LICENCE TO A FILM SUPPLIER

INSPECTION RESULT	ACTIONS			
SATISFACTORY	▶ LABORATORY TESTS	TEST RESULTS SATISFACTORY	LICENCE GRANTED for the decoration system(s) tested	▶ FLORIDA TEST
		TEST RESULTS UNSATISFACTORY	LICENCE NOT GRANTED ⁽¹⁾	
UNSATISFACTORY	LICENCE NOT GRANTED ⁽¹⁾			

FLORIDA TEST RESULTS	FINAL ASSESSMENT
ALL BASIC DECORATIONS SATISFACTORY	LICENCE CONFIRMED for the decoration system(s) tested
1 OR MORE BASIC DECORATIONS UNSATISFACTORY	LICENCE CONFIRMED DECORATION SYSTEM WITHDRAWN ⁽²⁾

(1) A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.

(2) If only one decoration system is covered by the certification, the FS-licence itself shall be cancelled.

3.1.3 Renewing a licence granted to a film supplier

After a film supplier has been granted a licence to use the quality label, its plant shall be inspected once a year.

The routine inspection shall include the following aspects:

- a) **LABORATORY EQUIPMENT** in accordance with § 3.1.1.2
- b) **DECORATED SAMPLES** tested during in-house control
- c) **IN-HOUSE CONTROL AND REGISTERS**
- d) **SAMPLING** – Two different decorations under the same approval and indicated by the supplier in the technical data sheet shall be selected by the inspector for testing (see 3.1.2).

CONFORMITY ASSESSMENT

The inspector shall submit the inspection report to the General Licensee or QUALIDECO for evaluation.

Under the supervision of QUALIDECO, the General Licensee shall follow the procedure below (also see Table 6):

- If the results of the inspection (including laboratory test results) meet the requirements, authorisation to use the QUALIDECO quality label shall continue.
- If the results of the inspection do not meet the requirements, another inspection shall be carried out within one month (allowing for holiday periods and non-working days) after the film supplier has received notification of an unsatisfactory result from the General Licensee and/or QUALIDECO. In the meantime, the licensee shall rectify nonconformities and inform the General Licensee or QUALIDECO immediately. If the second inspection again produces unsatisfactory results, the licence to use the quality label shall be withdrawn immediately.

- If the results of the laboratory tests on one decoration do not meet the requirements, a new sample of the decoration that failed shall be prepared in the laboratory for repeating the tests. If the results of these repeat laboratory tests are again unsatisfactory, the approval of the decoration that failed shall be withdrawn.
- If the results of the laboratory tests on both decorations do not meet the requirements, the tests shall be repeated on two new decorated samples prepared in the laboratory. If the results of these repeat laboratory tests are again unsatisfactory for one or both decorations, the approval of the decoration(s) that failed shall be withdrawn.
- If the results of the Florida test do not meet the requirements, the approval of the decoration(s) that failed shall be withdrawn.
- The decoration(s) that failed shall be recorded in **a list of banned decorations appended to the certificate of both the film supplier and powder supplier.**
- The film supplier shall have banned decorations tested again as soon as possible after receiving notification. Banned decorations subject to repeat testing shall be considered suspended.

TABLE 6 : PROCEDURE FOR RENEWING A QUALIDECO LICENCE GRANTED TO A FILM SUPPLIER

INSPECTION	INSPECTION RESULT		ACTIONS		
	SATISFACTORY		▶ LABORATORY TESTS		
	UNSATISFACTORY		▶ REPEAT INSPECTION		
INSPECTION	SATISFACTORY		REPETITION OF INSPECTION	▶ LABORATORY TESTS	
	UNSATISFACTORY			LICENCE WITHDRAWN	

LABORATORY TESTS	LABORATORY TEST RESULTS		ACTIONS		
	BOTH DECORATIONS SATISFACTORY		LICENCE RENEWED ▶ FLORIDA TEST		
	1 DECORATION OK 1 DECORATION NOT OK		▶ REPEAT LABORATORY TESTS ON THE DECORATION THAT FAILED ⁽¹⁾		
LABORATORY TESTS	BOTH DECORATIONS UNSATISFACTORY		REPETITION OF LABORATORY TESTS	▶ FLORIDA TEST	
	BOTH DECORATIONS UNSATISFACTORY			▶ REPEAT LABORATORY TESTS ON BOTH DECORATIONS ⁽¹⁾	

FLORIDA TEST	FLORIDA TEST RESULTS		FINAL ASSESSMENT	
	BOTH DECORATIONS SATISFACTORY		LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED BOTH DECORATIONS APPROVED	
	1 DECORATION SATISFACTORY		LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED SATISFACTORY DECORATION APPROVED	
	1 DECORATION UNSATISFACTORY		LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED 1 DECORATION BANNED ⁽²⁾	
	BOTH DECORATIONS UNSATISFACTORY		LICENCE RENEWED - DECORATION SYSTEM APPROVAL RENEWED 2 DECORATIONS BANNED ⁽²⁾	

(1) After receiving notification of the unsatisfactory results, the supplier shall submit a new film sample, with the same reference code as the material used for preparing the unsatisfactory decoration(s). The laboratory shall then use this sample to prepare new decorated samples for repeating the tests.

(2) Every banned decoration shall be recorded in a list of banned decorations appended to the certificate of both the film supplier and powder supplier. The film supplier shall have banned decorations tested again as soon as possible after receiving notification. Banned decorations subject to repeat testing shall be considered suspended.



3.1.4 Approval of a new decoration system

After a film supplier has been granted a licence to use the quality label, new decoration systems shall be approved subject to the following conditions:

1. The film supplier shall submit to QUALIDECO a written application identifying the decoration system(s) (film + powder) to be approved.
2. When the application is registered by QUALIDECO, the film supplier shall send a roll of film for the following **four basic decorations** to a QUALIDECO laboratory:
 - WALNUT and OAK applied on a brown base
 - PINE and OAK applied on a beige base.

The names and references of the powder coating materials used shall be specified.

3. Samples of film shall be taken from that part of the roll where the pattern and printing marks appear.
4. A QUALIDECO laboratory shall apply the film and perform the following tests:
 - accelerated weathering test
 - resistance to humid atmospheres containing sulphur dioxide
 - natural weathering test in Florida.

CONFORMITY ASSESSMENT

- If the results of the laboratory tests meet the requirements, the new decoration system(s) shall be added to the licence.
- If the results of one or more laboratory tests do not meet the requirements, the laboratory tests shall be repeated. If the results of the laboratory tests or inspection do not meet the requirements, the applicant shall be informed that the new decoration system(s) cannot be approved for the time being, stating the reasons.
- If one or more basic decoration(s) do not meet the requirements after the Florida test, the decoration system shall be withdrawn from the licence.

TABLE 7: PROCEDURE FOR APPROVAL OF A NEW DECORATION SYSTEM TO A FILM SUPPLIER

LABORATORY TESTS		
SATISFACTORY	DECORATION SYSTEM APPROVED ⁽¹⁾	▶ FLORIDA TEST
UNSATISFACTORY	DECORATION SYSTEM NOT APPROVED	

FLORIDA TEST RESULTS	FINAL ASSESSMENT
ALL BASIC DECORATIONS SATISFACTORY	DECORATION SYSTEM CONFIRMED
1 OR MORE BASIC DECORATIONS UNSATISFACTORY	DECORATION SYSTEM WITHDRAWN FROM THE LICENCE ⁽²⁾

(1) The new decoration system shall be added to the licence.

(2) If only one decoration system is covered by the certification, the film supplier's licence itself shall be cancelled.



3.1.5 Withdrawal of a decoration system

The approval of a decoration system (base coat + film) shall be withdrawn if

- one or more basic decorations do not meet the requirements after the Florida test
- as soon as four decorations are banned.

3.1.6 Withdrawal of a film supplier's licence

A film supplier's licence shall be cancelled if two consecutive inspections are unsatisfactory.

A film supplier's licence covering only one decoration system shall also be cancelled if the approval of this decoration system has to be withdrawn as stipulated in § 3.1.5.

3.2. Licensing of powder suppliers

3.2.1 Work specifications for powder suppliers (REQUIREMENTS)

3.2.1.1 Traceability

The powder supplier shall have a procedure for monitoring and documenting all manufacturing steps in order to ensure traceability in the production chain. The results of these measures shall be entered in some record (register) readily accessible to the inspector.

3.2.1.2 Laboratory and in-house control

The powder supplier shall have laboratory facilities that are separate from the production facilities. This laboratory shall have all the apparatus and chemicals necessary for testing the manufacturing process and decorated products.

It shall at least be equipped with the following apparatus and reference material:

- ◆ a specular glossmeter
- ◆ an instrument for measuring coating thickness
- ◆ apparatus for the mechanical tests
- ◆ a recorder for stoving temperature and time with four different measuring points
- ◆ apparatus for testing accelerated weathering resistance and for measuring colour change and gloss retention
- ◆ an application booth
- ◆ transfer equipment
- ◆ a grey scale reference (ISO 105-A02)

Each piece of apparatus shall have a data sheet showing the apparatus identification number and calibration checks.

The powder supplier shall use the following procedure to monitor its manufacturing process and test its coated and decorated products:

- Each production lot shall be tested at least once and a coated panel shall be prepared to check the visual appearance (gloss and colour) and mechanical properties every 100 to 300 kg depending on the lot size. The results shall be recorded in a register.
- The powder supplier shall provide the decorator with a system data sheet. A copy shall be available to the inspector during his visit.
- In its laboratory, the powder supplier shall carry out an accelerated weathering test at least once a year on eight different approved decorations. The record of the results obtained shall be shown to the QUALIDECO inspector.

3.2.2 Granting a licence to a powder supplier

A licence shall be granted subject to the following conditions:

1. The powder supplier shall submit to QUALIDECO a written application identifying the decoration system(s) (powder + film) to be approved.
2. The plant shall have a laboratory equipped with the minimum apparatus (see § 3.2.1.2).
3. The basic colours to be tested are BEIGE and BROWN. The names and references of the powder coating materials used shall be specified.



4. If the application is accepted by QUALIDECO, a QUALIDECO laboratory shall ask the film supplier to send a roll of film for the following **four basic decorations**:
 - WALNUT and OAK applied on a brown base
 - PINE and OAK applied on a beige base.
5. Samples of film shall be taken from that part of the roll where the pattern and printing marks appear.
6. A QUALIDECO laboratory shall apply the powder coating and the film and perform the following tests:
 - accelerated weathering test
 - resistance to humid atmospheres containing sulphur dioxide.
7. A natural weathering test shall be carried out in Florida.
8. An inspection of the powder supplier’s facility shall be carried out to check that its in-house control meets the requirements specified in § 3.2.1.2.

CONFORMITY ASSESSMENT

Under the supervision of QUALIDECO, the General Licensee shall follow the procedure below:

- If the results of the inspection and laboratory tests meet the requirements, a licence to use the QUALIDECO quality label shall be granted for the decoration systems tested, which shall be considered approved.
- If the results of the inspection and laboratory tests do not meet the requirements, the applicant shall be informed that the licence to use the quality label cannot be granted for the time being, stating the reasons. A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.

After a licence has been granted:

- If the results of the Florida test are satisfactory for all the basic decorations tested, the grant of the licence shall be confirmed for the decoration system(s) tested.
- If one or more basic decoration(s) do not meet the requirements after the Florida test, the licence shall be confirmed, but the decoration system shall be withdrawn. If only one decoration system is covered by the certification and fails, the licence itself shall be cancelled.

TABLE 8: PROCEDURE FOR GRANTING A LICENCE TO A POWDER SUPPLIER

INSPECTION RESULT	ACTIONS			
SATISFACTORY	▶ LABORATORY TESTS	TEST RESULTS SATISFACTORY	LICENCE GRANTED for the decoration system(s) tested	▶ FLORIDA TEST
		TEST RESULTS UNSATISFACTORY	LICENCE NOT GRANTED ⁽¹⁾	
UNSATISFACTORY	LICENCE NOT GRANTED ⁽¹⁾			
FLORIDA TEST RESULTS		FINAL ASSESSMENT		
ALL DECORATIONS SATISFACTORY		LICENCE CONFIRMED – DECORATION SYSTEM APPROVAL CONFIRMED		
1 OR MORE DECORATION(S) UNSATISFACTORY		LICENCE CONFIRMED – DECORATION SYSTEM APPROVAL WITHDRAWN ⁽²⁾		

(1) A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.

(2) If the powder supplier has only one decoration system approved, the PS-licence itself shall be cancelled.



3.2.3 Renewing a licence granted to a powder supplier

After a powder supplier has been granted a licence to use the quality label, its plant shall be inspected once a year.

The routine inspection shall include the following aspects:

- a) **LABORATORY EQUIPMENT** in accordance with § 3.2.3
- b) **DECORATED SAMPLES** tested during in-house control
- c) **IN-HOUSE CONTROL AND REGISTERS**
- d) **SAMPLES OF THE APPROVED SYSTEM(S) USED FOR DECORATION** to be taken and tested using the same laboratory tests as for granting a licence in order to verify that it/they meet(s) the requirements.

CONFORMITY ASSESSMENT

The inspector shall submit the inspection report to the General Licensee or QUALIDECO for evaluation.

Under the supervision of QUALIDECO, the General Licensee shall follow the procedure below (*also see Table 9*):

- If the results of the inspection (including laboratory test results) meet the requirements, authorisation to use the QUALIDECO quality label shall continue.
- If the results of the inspection do not meet the requirements, another inspection shall be carried out within one month (allowing for holiday periods and non-working days) after the powder supplier has received notification of an unsatisfactory result from the General Licensee and/or QUALIDECO. In the meantime, the licensee shall rectify nonconformities and inform the General Licensee or QUALIDECO immediately. If the second inspection again produces unsatisfactory results, the licence to use the quality label shall be withdrawn immediately.
- If the results of the laboratory tests on one decoration do not meet the requirements, a new sample of the decoration that failed shall be prepared in the laboratory for repeating the tests. If the results of these repeat laboratory tests are again unsatisfactory, the approval of the decoration that failed shall be withdrawn.
- If the results of the laboratory tests on both decorations do not meet the requirements, the tests shall be repeated on two new decorated samples prepared in the laboratory. If the results of these repeat laboratory tests are again unsatisfactory for one or both decorations, the approval of the decoration(s) that failed shall be withdrawn.
- If the results of the Florida test do not meet the requirements, the approval of the decoration(s) that failed shall be withdrawn.
- The decoration(s) that failed shall be recorded in a list of banned decorations appended to the certificate of both the film supplier and powder supplier.
- The powder supplier shall have banned decorations tested again as soon as possible after receiving notification. Banned decorations subject to repeat testing shall be considered suspended.

TABLE 9: PROCEDURE FOR RENEWING A QUALIDECO LICENCE GRANTED TO A POWDER SUPPLIER

INSPECTION	INSPECTION RESULT	ACTIONS			
	SATISFACTORY	▶ LABORATORY TESTS			
UNSATISFACTORY	▶ REPEAT INSPECTION	REPETITION OF INSPECTION	SATISFACTORY	▶ LABORATORY TESTS	
			UNSATISFACTORY	LICENCE WITHDRAWN	

LABORATORY TESTS	LABORATORY TEST RESULTS	ACTIONS			
	BOTH DECORATIONS SATISFACTORY	1 DECORATION SATISFACTORY	▶ REPEAT LABORATORY TESTS ON THE DECORATION THAT FAILED ⁽¹⁾	REPETITION OF LABORATORY TESTS	SATISFACTORY
UNSATISFACTORY					DECORATION BANNED ⁽²⁾
BOTH DECORATIONS UNSATISFACTORY	▶ REPEAT LABORATORY TESTS ON BOTH DECORATIONS ⁽¹⁾	REPETITION OF LABORATORY TESTS	BOTH DECORATIONS SATISFACTORY	▶ FLORIDA TEST	
			1 DECORATION SATISFACTORY		1 DECORATION BANNED ⁽²⁾
			1 DECORATION UNSATISFACTORY	▶ REPEAT INSPECTION	
			BOTH DECORATIONS UNSATISFACTORY		

FLORIDA TEST	FLORIDA TEST RESULTS		FINAL ASSESSMENT	
	BOTH DECORATIONS SATISFACTORY		LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED BOTH DECORATIONS APPROVED	
	1 DECORATION SATISFACTORY		LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED SATISFACTORY DECORATION APPROVED	
	1 DECORATION UNSATISFACTORY		LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED 1 DECORATION BANNED ⁽²⁾	
	BOTH DECORATIONS UNSATISFACTORY		LICENCE RENEWED – DECORATION SYSTEM APPROVAL RENEWED 2 DECORATIONS BANNED ⁽²⁾	

- After receiving notification of the unsatisfactory results, the supplier shall submit a new powder sample, with the same reference code as the material used for preparing the unsatisfactory decoration(s). The laboratory shall then use this sample to prepare new decorated samples for repeating the tests.
- Every banned decoration shall be recorded in a list of banned decorations appended to the certificate of both the film supplier and powder supplier. The powder supplier shall have banned decorations tested again as soon as possible after receiving notification. Banned decorations subject to repeat testing shall be considered suspended.

3.2.4 Approval of a new decoration system

After a powder supplier has been granted a licence to use the quality label, new decoration systems shall be approved subject to the following conditions:

1. The powder supplier shall submit to QUALIDECO a written application identifying the decoration system(s) (film + powder) to be approved.
2. The basic colours to be tested are:
 - BEIGE)
 - BROWN
3. For the approval of a decoration system or systems, a QUALIDECO laboratory shall apply the four basic decorations, WALNUT and DARK OAK on a brown base and PINE and LIGHT OAK on a beige base, for every film supplier chosen by the powder supplier.

The following tests shall be performed:

- accelerated weathering test
- resistance to humid atmospheres containing sulphur dioxide
- natural weathering test in Florida.

CONFORMITY ASSESSMENT

- If the results of the laboratory tests meet the requirements, the new decoration system(s) shall be added to the licence.
- If the results of one or more laboratory tests do not meet the requirements, the laboratory tests shall be repeated. If the results of the laboratory tests or inspection do not meet the requirements, the applicant shall be informed that the new decoration system(s) cannot be approved for the time being, stating the reasons.
- If one or more basic decoration(s) do not meet the requirements after the Florida test, the decoration system shall be withdrawn from the licence.

TABLE 10: PROCEDURE FOR GRANTING AN APPROVAL FOR A NEW DECORATION SYSTEM TO A POWDER SUPPLIER

LABORATORY TESTS		
SATISFACTORY	DECORATION SYSTEM APPROVED ⁽¹⁾	▶ FLORIDA TEST
UNSATISFACTORY	DECORATION SYSTEM NOT APPROVED	

FLORIDA TEST RESULTS	FINAL ASSESSMENT
ALL BASIC DECORATIONS SATISFACTORY	DECORATION SYSTEM CONFIRMED
1 OR MORE BASIC DECORATIONS UNSATISFACTORY	DECORATION SYSTEM WITHDRAWN FROM THE LICENCE ⁽²⁾

(1) The new decoration system shall be added to the licence.

(2) If only one decoration system is covered by the certification, the PS-licence itself shall be cancelled.

3.2.5 Withdrawal of a decoration system

A decoration system (base coat + film) shall be withdrawn if

- one or more basic decoration(s) do not meet the requirements after the Florida test
- as soon as four decorations are banned.

3.2.6 Withdrawal of a powder supplier’s licence

A powder supplier’s licence shall be cancelled if two consecutive inspections are unsatisfactory.

A powder supplier’s licence covering only one decoration system shall also be cancelled if the approval of this decoration system has to be withdrawn as stipulated in § 3.2.5.



Chapter 4

LICENSING OF DECORATORS USING POWDER ON POWDER TECHNOLOGY

4. LICENSING OF DECORATORS USING POWDER ON POWDER TECHNOLOGY

This effect is obtained in two steps: the main coating (A) is first applied and partially cured. Then in a second step, the final coat (B) is applied on top of the base coat using a special filter and following a specific pattern. The system is then fully cured.

The main and top coatings shall be produced by the same manufacturer.

The pre-curing and curing conditions shall be defined by the powder suppliers, and appropriate technical data sheets shall be available in the decorator's plant.

4.1. Work specifications for decorators using powder on powder technology (REQUIREMENTS)

4.1.1 Laboratory

The decorator shall at least be equipped with the following apparatus:

- ◆ specular glossmeter
- ◆ instrument for measuring coating thickness
- ◆ equipment to check metal temperature (temperature recorder).

Each piece of apparatus shall have a data sheet showing the apparatus identification number and calibration checks.

4.1.2 In-house control

The decorator shall monitor the production processes and inspect the decorated products as follows:

- **INCOMING MATERIALS**

The decorator shall keep a register showing all data concerning the material received and to be decorated (date, lot, coating applicator, coating applicator's licence number, powder supplier, powder approval number, basic colour). An example is shown in Appendix 1.

- **DECORATED PRODUCTS.**

- a) **Gloss test (EN ISO 2813)**

The gloss shall be measured for every lot of decorated products (one lot represents a customer's complete order in one colour or that part of the order which is in the plant).

If the gloss cannot be measured with apparatus, a visual assessment shall be performed by comparison with reference samples agreed with the customer.

The results of these analyses shall be entered in some record (register) readily accessible to the inspector, showing the nominal values and maximum values not to be exceeded.

b) Coating thickness test (EN ISO 2360)

The coating thickness shall be measured on at least as many samples as specified below:

Lot size	Number of samples (random selection)	Acceptance limit for rejected samples
1 – 10	All	0
11 – 200	10	1
201 – 300	15	1
301 – 500	20	2
501 – 800	30	3
801 – 1,300	40	3
1,301 – 3,200	55	4
3,201 – 8,000	75	6
8,001 – 22,000	115	8
22,001 – 110,000	150	11

The results of these measurements (minimum and maximum values) shall be entered and retained on some record readily accessible to the inspector.

• **STOVING CONDITIONS**

Pre-curing and curing conditions shall be monitored to ensure compliance with the supplier's data sheet by measuring the temperature at least once a day.

4.2. Granting a QUALIDECO licence to decorators using powder on powder technology

4.2.1 Inspection

Provided that the company fulfils all the preliminary conditions and a written application has been submitted to QUALIDECO, an inspection for granting a licence shall be carried out as follows:

a) STOVING PROCESS

b) LABORATORY EQUIPMENT

c) DECORATED PRODUCTS

The inspector shall perform the following tests on the decorated parts using his own equipment:

- appearance
- gloss
- coating thickness

d) IN-HOUSE CONTROL AND REGISTERS

The inspector shall check that in-house control has been carried out in accordance with § 4.2.2 and that registers are correctly maintained.

4.2.2 Tests

4.2.2.1 Laboratory tests

Laboratory tests shall be performed on samples taken from a production lot for exterior architectural applications. Corrosion tests shall be performed on single samples.

The tests and prescribed limits are as follows:

a) Gloss

EN ISO 2813 – using incident light at 60° to the normal

Note: if the significant surface is too small or unsuitable for the gloss to be measured with a glossmeter, the gloss should be compared visually with the reference sample (from the same viewing angle).

REQUIREMENTS:

Gloss category	Gloss range	Acceptable variation
1 (matt)	0 – 30	+/- 5 units
2 (semi-matt or semi-gloss)	31 – 70	+/- 7 units
3 (gloss)	71 – 100	+/- 10 units

b) Coating thickness

EN ISO 2360

The thickness of the organic coating on each part to be tested shall be measured on the significant surface at not less than five measuring areas (approx. 1 cm²) with three to five separate readings taken at each area. The average of the separate readings taken at one measuring area gives a measured value to be recorded in the inspection reports.

REQUIREMENTS:

None of the measured values may be less than 80% of the specified minimum value (60 µm), otherwise the thickness test as a whole shall be considered unsatisfactory.

c) Resistance to humid atmospheres containing sulphur dioxide

EN ISO 3231 (0.2 l SO₂ – 24 cycles)

A cross-cut incision with a width of 1 mm shall be made to cut the organic coating down to the metal.

REQUIREMENTS:

No infiltration exceeding 1 mm on both sides of the scratch, and no colour change or blistering in excess of 2 (S2) in accordance with ISO 4628-2.

d) Resistance to boiling water

Method 1 with boiling water:

Two hours immersion in boiling demineralised water (maximum 10 µS at 20°C). Remove the test panel and allow it to cool down to room temperature. Apply an adhesive tape to the surface, ensuring that no air is trapped. After one minute, remove the tape at an angle of 45° with a sharp even pull.

Method 2 with a pressure cooker:

Add demineralised water (maximum 10 µS at 20°C) to a pressure cooker with an internal diameter of about 200 mm to a depth of 25 mm and place a test panel measuring 50 mm in it.

Place the lid in position and heat the pressure cooker until steam escapes from the valve. The weighted needle valve shall be adjusted to produce an internal pressure of 100 ± 10 kPA (1 bar). Continue heating for one hour, timing from the moment when steam first escapes from the valve. Cool the pressure cooker, remove the sample and allow it to cool down to room temperature.

Apply an adhesive tape (see section 2.4. of the QUALICOAT Specifications) to the surface, ensuring that no air is trapped. After one minute, remove the tape at an angle of 45° with a sharp even pull.

REQUIREMENTS:

No blistering in excess of 2 (S2) in accordance with ISO 4628-2. There shall not be any defects or detachment. Some colour change is acceptable.

e) Accelerated weathering test

ISO 16474-2

Luminous intensity: 550 ± 20 W/m² (290–800 nm)

Black standard temperature: 65 ± 5°C

Demineralised water: maximum 10 µS

Special UV filter (290 nm)

Cycles of 18 minutes in a wet medium and 102 minutes in a dry medium.

Testing Time: 1000 hours

After exposure, the test panels shall be rinsed with demineralised water and checked for:

Gloss variation: EN ISO 2813

60° angle of incidence

Colour change: ΔE CIELAB formula in accordance with ISO 7724/3, measurement including specular reflection.

Three colour measurements shall be made on the test panels before and after the accelerated weathering test.

REQUIREMENTS:

Gloss variation:

The loss of gloss after the accelerated weathering test shall not be greater than 50% of the original value.

Colour change:

Even though the colour is not uniform, the colour change can still be measured with instrumental apparatus. In this case, the provisional limit shall be Delta E = 2 for a light base and 3 for a dark base.

In all cases, the final evaluation shall be based on a visual inspection using normal corrected vision, with a maximum value of 4 on the grey scale (ISO 105-A02).

4.2.2.2 Natural weathering test (for class 2 only)²

Exposure in Florida in accordance with ISO 2810.

The test shall start in April.

Samples shall be exposed at an angle of 5° to the horizontal and facing south towards the equator for 1 year.

REQUIREMENTS:

For the time being, the acceptable limits are the same as those stipulated for the accelerated weathering test.

² For class 2, see Appendix II.



4.2.3 Conformity assessment for granting a licence

The inspector shall submit the inspection report to the General Licensee.

Under the supervision of QUALIDECO, the General Licensee shall follow the procedure below:

- If the results of the inspection and laboratory tests meet the requirements, a licence to use the QUALIDECO quality label shall be granted to the decorator.
- If the results of the inspection or laboratory tests do not meet the requirements, the applicant shall be informed that the licence to use the quality label cannot be granted for the time being, stating reasons. A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.

TABLE 11: PROCEDURE FOR GRANTING A QUALIDECO LICENCE TO A DECORATOR (POWDER ON POWDER, CLASS 1)

INSPECTION RESULT	ACTIONS		
SATISFACTORY	▶ LABORATORY TESTS ⁽¹⁾	TEST RESULTS SATISFACTORY	LICENCE GRANTED
		TEST RESULTS UNSATISFACTORY	LICENCE NOT GRANTED ⁽²⁾
UNSATISFACTORY	LICENCE NOT GRANTED ⁽²⁾		

(1) Two decorated samples selected by the inspector during his visit shall be tested in accordance with section 4.2.2.1

(2) A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.

TABLE 12: PROCEDURE FOR GRANTING A QUALIDECO LICENCE TO A DECORATOR (POWDER ON POWDER, CLASS 2)

INSPECTION RESULT	ACTIONS				
SATISFACTORY	▶ LABORATORY TESTS ⁽¹⁾	LABORATORY TEST RESULTS SATISFACTORY	▶ FLORIDA TEST	FLORIDA TEST SATISFACTORY	LICENCE GRANTED
				FLORIDA TEST UNSATISFACTORY	LICENCE NOT GRANTED ⁽²⁾
		LABORATORY TEST RESULTS UNSATISFACTORY	LICENCE NOT GRANTED ⁽²⁾		
UNSATISFACTORY	LICENCE NOT GRANTED ⁽²⁾				

(1) Samples of all class 2 decorations for exterior architectural applications shall be collected by the inspector during his visit and tested in accordance with section 4.2.2.1

(2) A new application may be made only when the company has given notification that it has rectified the deficiencies recorded.



4.3. Renewing a QUALIDECO licence granted to a decorator using powder on powder technology

4.3.1 Inspection

After a plant has been granted a QUALIDECO licence, it shall be inspected once a year.

Marketing materials shall also be examined in order to check that the QUALIDECO licence is used for approved decorations only.

4.3.2 Tests

Every year, two decorations shall be selected by the inspector during his visit and be tested in a QUALIDECO laboratory.

The tests are the same as for granting a licence (§ 4.3.2).

4.3.3 Conformity assessment for renewing a licence

The inspector shall submit the inspection report to the General Licensee or QUALIDECO for evaluation.

Under the supervision of QUALIDECO, the General Licensee shall follow the procedure below (*also see Table 13*):

- If the results of the inspection and laboratory tests meet the requirements, authorisation to use the QUALIDECO quality label shall continue for every decoration that meets the requirements.
- If the results of the inspection are satisfactory but the laboratory tests on one or two decorations do not meet the requirements, the decorator shall be requested to submit the decoration(s) that failed and the tests shall be repeated.
 - If the results of these repeat laboratory tests meet the requirements, authorisation to use the QUALIDECO label shall continue.
 - If the results of these repeat laboratory tests are again unsatisfactory, the decorator shall no longer be allowed to use the decoration(s) that failed, but the licence shall be renewed. In addition, the decoration(s) that failed shall be recorded in a list of banned decorations appended to the decorator's certificate.

TABLE 13: PROCEDURE FOR RENEWING A QUALIDECO LICENCE (POWDER ON POWDER, CLASS 1)

INSPECTION	INSPECTION RESULT	ACTIONS	REPETITION OF INSPECTION	SATISFACTORY	▶ LABORATORY TESTS ⁽¹⁾
	SATISFACTORY	▶ LABORATORY TESTS ⁽¹⁾			
	UNSATISFACTORY	▶ REPEAT INSPECTION		UNSATISFACTORY	LICENCE WITHDRAWN

LABORATORY TESTS	LABORATORY TEST RESULTS	ACTIONS	REPETITION OF LABORATORY TESTS	SATISFACTORY	FINAL ASSESSMENT
	BOTH DECORATIONS SATISFACTORY	NO ACTION			
	<ul style="list-style-type: none"> 1 DECORATION SATISFACTORY 1 DECORATION UNSATISFACTORY 	▶ REPEAT LABORATORY TESTS ON THE DECORATION THAT FAILED ⁽²⁾		UNSATISFACTORY	LICENCE RENEWED DECORATION BANNED ⁽³⁾
	BOTH DECORATIONS UNSATISFACTORY	▶ REPEAT LABORATORY TESTS ON BOTH DECORATIONS ⁽²⁾		BOTH DECORATIONS SATISFACTORY	LICENCE RENEWED DECORATIONS APPROVED/RENEWED
				1 DECORATION SATISFACTORY	LICENCE RENEWED DECORATION APPROVED/RENEWED
				1 DECORATION UNSATISFACTORY	LICENCE RENEWED 1 DECORATION BANNED ⁽³⁾
				BOTH DECORATIONS UNSATISFACTORY	LICENCE RENEWED BOTH DECORATIONS BANNED ⁽³⁾

- (1) Every year, two decorations shall be selected by the inspector during his visit and be tested in a QUALIDECO laboratory.
- (2) After receiving notification of the unsatisfactory results, the decorator shall submit (a) new sample(s) of the decoration(s) that failed so that the laboratory tests can be repeated.
- (3) Every banned decoration shall be recorded in a list of banned decorations appended to the decorator's certificate.

TABLE 14: PROCEDURE FOR RENEWING A QUALIDECO LICENCE (POWDER ON POWDER, CLASS 2)

LABORATORY TESTS	LABORATORY RESULTS	ACTIONS	REPETITION OF LABORATORY TESTS	RESULTS	ACTIONS
		BOTH DECORATIONS SATISFACTORY		FLORIDA TEST	
	1 DECORATION SATISFACTORY	FLORIDA TEST		UNSATISFACTORY	1 DECORATION BANNED ⁽²⁾
	1 DECORATION UNSATISFACTORY	REPEAT LABORATORY TESTS ON THE DECORATION THAT FAILED ⁽¹⁾		BOTH DECORATIONS SATISFACTORY	FLORIDA TEST
	BOTH DECORATIONS UNSATISFACTORY	REPEAT LABORATORY TESTS ON BOTH DECORATIONS ⁽¹⁾		1 DECORATION SATISFACTORY 1 DECORATION UNSATISFACTORY	FLORIDA TEST 1 DECORATION BANNED ⁽²⁾
				BOTH DECORATIONS UNSATISFACTORY	BOTH DECORATIONS BANNED ⁽²⁾

FLORIDA TEST	FLORIDA TEST RESULTS	FINAL ASSESSMENT
		BOTH DECORATIONS SATISFACTORY
	1 DECORATION SATISFACTORY	LICENCE RENEWED DECORATION APPROVED/RENEWED ⁽²⁾
	1 DECORATION UNSATISFACTORY	LICENCE RENEWED 1 DECORATION BANNED ⁽²⁾
	BOTH DECORATIONS UNSATISFACTORY	LICENCE RENEWED BOTH DECORATIONS BANNED ⁽²⁾

- (1) After receiving notification of the unsatisfactory results, the decorator shall submit (a) new sample(s) of the decoration(s) that failed so that the laboratory tests can be repeated.
- (2) Every banned decoration shall be recorded in a list of banned decorations appended to the decorator's certificate.



4.4. Withdrawal of a licence granted to decorators using powder on powder technology

A licence shall be cancelled after two consecutive unsatisfactory inspections and as soon as four decorations have been banned due to unsatisfactory accelerated weathering test results (both classes) or natural weathering test results (class 2).



Chapter 5

APPROVALS OF DECORATION SYSTEMS (APPLIES TO POWDER ON POWDER TECHNOLOGY ONLY)

5. APPROVALS OF DECORATION SYSTEMS (APPLIES TO POWDER ON POWDER TECHNOLOGY ONLY)

5.1. Granting of extensions and approvals

Extensions or approvals shall be granted if all the tests mentioned in section 5.2 are satisfactory.

5.1.1 Extension for powder on powder technology

If a powder supplier wishes to have a QUALICOAT approval (P-No.) extended for powder on powder (main coating and non-continuous top coating having the same QUALICOAT approval), tests shall be carried out in accordance with section 5.2.1 to check the compatibility between RAL 8011 (base coating) and RAL 8017 (top coating) on WALNUT decoration.

5.1.2 QUALIDECO approval (DECO-Pxxx)

If the main coating and top coating have different QUALICOAT approvals (P-Number), the powder manufacturer shall submit to a QUALIDECO laboratory a sample of the base coat and top coat to obtain the following decorations defined by QUALIDECO: **PINE, CHERRY and OAK.**

5.2. Tests

5.2.1 Laboratory tests

The following tests shall be carried out by a QUALIDECO approved laboratory:

a) Resistance to humid atmospheres containing sulphur dioxide

EN ISO 3231 (0.2 l SO₂ – 24 cycles)

A cross-cut incision with a width of 1 mm shall be made to cut the organic coating down to the metal.

REQUIREMENTS:

No infiltration exceeding 1 mm on both sides of the scratch, and no colour change or blistering in excess of 2 (S2) in accordance with ISO 4628-2.

b) Resistance to boiling water

Method 1 with boiling water:

Two hours immersion in boiling demineralised water (maximum 10 µS at 20°C). Remove the test panel and allow it to cool down to room temperature. Apply an adhesive tape to the surface, ensuring that no air is trapped. After one minute, remove the tape at an angle of 45° with a sharp even pull.

Method 2 with a pressure cooker:

Add demineralised water (maximum 10 µS at 20°C) to a pressure cooker with an internal diameter of about 200 mm to a depth of 25 mm and place a test panel measuring 50 mm in it.

Place the lid in position and heat the pressure cooker until steam escapes from the valve. The weighted needle valve shall be adjusted to produce an internal pressure of 100 ± 10 kPa (1 bar). Continue heating for one hour, timing from the moment when steam first escapes from the valve. Cool the pressure cooker, remove the sample and allow it to cool down to room temperature.

Apply an adhesive tape (see section 2.4. of the QUALICOAT Specifications) to the surface, ensuring that no air is trapped. After one minute, remove the tape at an angle of 45° with a sharp even pull.

REQUIREMENTS:

No blistering in excess of 2 (S2) in accordance with ISO 4628-2. There shall not be any defects or detachment. Some colour change is acceptable.

c) Accelerated weathering test

ISO 16474-2

Luminous intensity: $550 \pm 20 \text{ W/m}^2$ (290–800 nm)

Black standard temperature: $65 \pm 5^\circ\text{C}$

Demineralised water: maximum 10 μS

Special UV filter (290 nm)

Cycles of 18 minutes in a wet medium and 102 minutes in a dry medium.

After 1000 hours of exposure, the test panels shall be rinsed with demineralised water and checked for:

Gloss variation: EN ISO 2813

60° angle of incidence

Colour change: ΔE CIELAB formula in accordance with ISO 7724/3, measurement including specular reflection.

Three colour measurements shall be made on the test panels before and after the accelerated weathering test.

REQUIREMENTS:

Gloss retention

The loss of gloss after the accelerated weathering test shall not be greater than 50% of the original value.

Colour change:

Even though the colour is not uniform, the colour change can still be measured with instrumental apparatus. In this case, the provisional limit shall be $\Delta E = 2$ for a light base and 3 for a dark base.

In all cases, the final evaluation shall be based on a visual inspection using normal corrected vision, with a maximum value of 4 on the grey scale (ISO 105-A02).

5.2.2 Natural weathering test

Exposure in Florida in accordance with ISO 2810

Samples shall be exposed at an angle of 5° to the horizontal and facing south towards the equator for one year.

The test shall start in April.

REQUIREMENTS:

For the time being, the acceptable limits are the same as those stipulated for the accelerated weathering test.



5.3. Renewing decoration system approvals

5.3.1 Same QUALICOAT P-Number (powder on powder extension)

Every year, the powder supplier shall submit powders (base coat and top coat) for one decoration defined by QUALIDECO.

The laboratory tests (see § 5.2.1) shall be performed both on decorated samples and on samples coated with the base and top coat colours separately.

5.3.2 Different QUALICOAT P-Number (DECO P-xxx)

Every year, the powder supplier shall submit one colour for the base coat and one for the top coat to obtain the three decorations (PINE, CHERRY, OAK) defined by QUALIDECO.

The laboratory tests shall be performed both on decorated samples and on samples coated with the base and top coat colours separately.



Chapter 6

LOGO



6. LOGO

Authorisation to use the QUALIDECO logo may be granted on condition that the Holder of a QUALIDECO licence (hereinafter referred to as the “Holder”) operates in accordance with the Specifications. This authorisation is governed by a contract.

The grant of a licence entitles the Holder to use the logo for the products specified. The licence may not be transferred.

6.1. Register of Holders

QUALICOAT shall keep a register showing the name, address and trade description of each Holder, the date on which the licence was granted to the Holder, the number assigned to each Holder, the approved decorations, the date of withdrawal of the licence and any other information or details which QUALIDECO may deem necessary at any time.

The Holder shall notify QUALICOAT forthwith of any changes in name or address.

6.2. Use of the logo by Holders

The logo exists in black and white, in white and blue (PANTONE Reflex Blue CV; RGB: 14-27-141; CMYK: 100-72-0-6) and in blue and silver (PANTONE Silver 877u; RGB: 205-211-215; CMYK: 8-3-3-9).



**DECORATOR
FILM SUPPLIER
POWDER SUPPLIER**
(Licence No. xxxxx)



**DECORATOR
FILM SUPPLIER
POWDER SUPPLIER**
(Licence No. xxxxx)

The Holder may not make any alteration or addition to the logo when using it. In the event that the Holder's own brands or trademarks are used separately on or in connection with his products, these regulations may not be infringed in any manner whatsoever. Holders of a QUALIDECO licence shall at any time provide the General Licensee (GL) with all information required as to the use of the logo.

Whenever making mention of or reference to QUALIDECO, the Holder must systematically indicate its licence number. This shall apply both to the use of the logo and in texts.

Improper use of the QUALIDECO logo may lead to the sanctions stipulated in § 6.4.



6.3. Withdrawal of licences

Failure to comply with the Regulations

The GL shall withdraw the licence if the Holder ceases to comply with these regulations and in particular if the Holder is guilty of any improper use of the logo or has failed to pay the annual fee.

In the event of withdrawal of a licence, the Holder shall be given notice in writing by the GL and such notice shall be effective immediately. In such event, all tags, labels, bands, stencils, stamps, wrappers, containers, price lists, business notices, business cards and any other objects in or upon which the logo is affixed shall either be delivered to the GL or, upon the GL's instructions, kept at the disposal of the GL until a new QUALIDECO licence is granted.

Significant changes in a company

In the case of any significant event in a company (change in shareholders or key personnel, new lines), that company shall notify the GL immediately. The GL shall be authorised to make a supplementary visit in order to ensure that the Holder continues to satisfy all the conditions stipulated in the Specifications.

If the Decorator ceases to trade, all tags, labels, bands, stencils, stamps, wrappers, containers, price lists, business notices, business cards and any other objects in or upon which the logo is affixed shall either be delivered to the GL or, upon the GL's instructions, kept at the disposal of the GL until a new QUALIDECO licence is granted.

Voluntary surrender

In the event of voluntary surrender of a licence, all tags, labels, bands, stencils, stamps, wrappers, containers, price lists, business notices, business cards and any other objects in or upon which the logo is affixed shall either be delivered to the GL or, upon the GL's instructions, kept at the disposal of the GL until a new QUALIDECO licence is granted.

6.4. Sanctions

In the event of improper use of the QUALIDECO logo or of any behaviour or action that could impair the image of the Quality Label, the following sanctions may be imposed either by the GL or by QUALICOAT in countries without a national association:

1. official statement
2. reprimand
3. withdrawal of the label.

The party concerned shall have the right to appeal first to the GL and then to the QUALICOAT Executive Committee, whose decision shall be final.

6.5. Amendments

The regulations stipulated in Chapter 6 of the QUALIDECO Specifications may be amended if and when necessary. However, the Holder shall be allowed 4 months from the date of publication in which to comply with any such amendment.



6.6. Notices

Any notice required to be given to or by the Holder under these regulations shall be effective if sent by correctly stamped and addressed letter.



Appendices



APPENDIX I – Example of in-house control checklists for decorators

Sublimation technology

Date	Coating applicator's reference	Customer	QUALICOAT approval for base coating	Reference code for powder coating	Film supplier	Decoration designation (name)	Reference code for film	Process		Product			Notes
								Oven		Before decoration		After decoration	
								Day	Week	Thickness	Gloss	Appearance	

Powder on powder technology

Date	Coating applicator's reference	Customer	QUALICOAT approval for base/top coat	Decoration designation	Process		Product			Notes	
					Oven		Decoration testing				
					Day	Week	Thickness	Gloss	Appearance		

APPENDIX II – Procedure for class 2 decorations

A – SUBLIMATION

1. Tests

The tests are the same as for class 1 decorations, but the requirements are as follows:

a. Sampling

The decorated samples shall be prepared by the laboratory in charge or, alternatively, by the film/powder producer or the decorator in the presence of the inspector.

b. Accelerated weathering test

Following **ISO 16474-2** under the conditions prescribed by QUALICOAT.

Testing time: 2000 hours, with gloss and colour change measured every 500 hours.

REQUIREMENTS:

➤ Gloss variation

- after 1000 hours, 90% residual gloss
- after 2000 hours
 - 50% residual gloss for category 1,
 - 70% residual gloss for categories 2 and 3

➤ Colour change: visual assessment and instrumental assessment (for information).

c. Natural weathering test

Same requirements as for QUALICOAT class 2.

2. Granting of an approval

An approval shall be granted for each decoration produced and tested for class 2, identifying the base and the decoration.

3. Renewal of approvals

Approvals shall be renewed every year using two of the approved decorations.

B – POWDER ON POWDER

1. Preliminary conditions

- The main and top coatings shall be produced by the same manufacturer and be approved as QUALICOAT class 2.
- The pre-curing and curing conditions shall be defined by the powder suppliers, and appropriate technical data sheets shall be available in the decorator's plant.
- The powder coating materials shall be approved for an extension for decoration using powder on powder technology, checking the compatibility of the two colours on WALNUT decoration following QUALIDECO criteria. The samples shall be sent to the QUALIDECO laboratory by the powder supplier.
- The company performing the decoration cycle shall hold the QUALIDECO quality label to ensure that the process is carried out under the best conditions.

2. Granting of an approval

An approval shall be granted if all the results of the tests prescribed in § 3 are satisfactory. The approval shall be granted for each class 2 decoration (uniquely identified by the base and top coat codes) produced by a QUALIDECO decorator using powder base and top coatings approved as QUALICOAT class 2.

3. Tests

The tests are the same as for class 1 decorations (see § 5.1.2.1 of the QUALIDECO Specifications), but the requirements are:

a. Accelerated weathering test

Following ISO 16474-2 under the conditions prescribed by QUALICOAT.

Testing time: 2000 hours, with gloss and colour change measured every 500 hours.

REQUIREMENTS:

- Gloss variation after 2000 hours
 - 50% residual gloss for category 1,
 - 70% residual gloss for categories 2 and 3
- Colour change: visual assessment (with a maximum value of 4 on the grey scale) and instrumental assessment (for information).

b. Resistance to boiling water (modified with cross-cut)

Method 2 with a pressure cooker:

Add demineralised water (maximum 10 µS at 20°C) to a pressure cooker with an internal diameter of about 200 mm to a depth of 25 mm and place a test panel measuring 50 mm in it.



Place the lid in position and heat the pressure cooker until steam escapes from the valve. The weighted needle valve shall be adjusted to produce an internal pressure of 100 ± 10 kPA (1 bar). Continue heating for one hour, timing from the moment when steam first escapes from the valve. Cool the pressure cooker, remove the sample and allow it to cool down to room temperature.

Make a cross-cut (see § 4.2.1 of the QUALICOAT Specifications) after one hour but within two hours. Apply an adhesive tape (see § 2.4. of the QUALICOAT Specifications) to the surface, ensuring that no air is trapped. After one minute, remove the tape at an angle of 45° with a sharp even pull.

c. Natural weathering test

Same requirements as for QUALICOAT class 2.

4. Renewal of approvals

Every year, two approved decorations shall be tested for renewal.

5. Certificate

The list of approved decorations shall be appended to the QUALIDECO certificate issued to the decorator.

APPENDIX III – Approval of new technologies

1. Scope

Decorations on coated aluminium can be obtained using different technologies, but technologies other than sublimation technology and powder on powder technology may only be used if previously approved by the QUALIDECO Committee.

It is the responsibility of QUALIDECO to develop a testing programme in order to check the quality of a new decoration product. The testing methods may be the same as for sublimation and powder on powder technology.

2. Description of new technology

Any company interested in having a new technology tested shall send a request to QUALIDECO giving technical explanations and providing information on laboratory test results and experience in the market.

Based on such information, the QUALIDECO Committee shall accept or reject the request, stating the reasons for its decision.

If the request is accepted, a QUALIDECO laboratory shall be asked to perform the tests to qualify the product. Tests other than those prescribed by QUALIDECO may be included in the testing programme if necessary. Outdoor exposure, if required, shall start only if the laboratory test results meet the requirements. The period of exposure shall be defined by QUALIDECO. It is the laboratory's responsibility to prepare a final report including all results.

3. Granting of an approval/licence

Based on the results obtained by the laboratory, QUALIDECO shall decide on the procedure to be followed to grant an approval (for the system tested) or a licence (for users of the system). The procedure shall also include the criteria for renewing and withdrawing an approval or licence.